

REMARKS

Claims 1-17 remain pending in the application. By this amendment, Applicant amends claims 1-17. The basis for these amendments can be found throughout the specification, claims and drawings as originally filed. No new matter is added. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

SPECIFICATION/DRAWINGS

The specification stands objected to for certain informalities. In particular, the Examiner asks Applicant to label 31a and 31b described in paragraph [0053] of the specification and 110 described in paragraph [0077] of the specification. Applicant notes that labels 31a and 31b appear to be located in paragraph [0054] of the specification and therefore paragraph [0054] is addressed herein.

Applicant amends the specification at paragraph [0054] to delete the reference to 31a and 31b. Accordingly, this objection is moot. Regarding label 110, Applicant attaches a revised drawing for the Examiner's approval. In the "Replacement Sheet," Applicant adds label 110 to Fig. 6. Therefore, Applicant respectfully requests reconsideration and withdrawal of this objection.

CLAIM OBJECTIONS

Claims 1-6, 11 and 13 stand objected to for various informalities. Applicant addresses each informality herein as suggested by the examiner. In particular, Claims 1-5 and 11 include a transitional phrase followed by steps so as to clearly present a step-by-

step method in the claim. Claims 6 and 13 now include proper antecedent basis. Therefore, Applicant respectfully requests reconsideration and withdrawal of this objection.

REJECTION UNDER 35 U.S.C. § 112

Claims 13-17 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Applicant amends Claim 13 to recite that the table for mounting the micro-array substrate supports the micro-array substrate relative to the carriage to enable manufacturing a micro-array by ejecting drops of liquid. One skilled in the art would clearly appreciate the role of the table as claimed. Therefore, Applicant respectfully requests reconsideration and withdrawal of this rejection.

REJECTION UNDER 35 U.S.C. § 103

Claims 1-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hermanson (US Pat. No. 5,572,243). This rejection is respectfully traversed.

Claim 1 calls for a method of filling an ink-jet head of an ink-jet printing apparatus with a liquid stored in a tank. The method includes bringing a suction cap into close contact with a nozzle opening surface of the ink-jet head while a gas-permeable filter is positioned between the suction cap and the nozzle opening surface. The gas-permeable filter allows a gas to pass therethrough but prevents the liquid from passing therethrough. As such, by sucking air within the suction cap with a pump connected to

the suction cap, the liquid from the tank may be drawn to the gas-permeable filter so as to fill the nozzle without leakage.

Similarly, Claim 6 calls for an ink-jet printing apparatus. The apparatus includes a tank supplying a liquid to be ejected to an ink-jet head and a suction unit that may be selectively pressed into close contact against a nozzle opening surface of the ink-jet head. The suction unit includes a suction cap having a gas-permeable filter provided at a surface thereof for pressing against the ink jet head. The gas permeable filter allows a gas to pass therethrough and prevents the liquid from passing therethrough. As such, when air within the suction cap is sucked with a pump connected to the suction cap, the liquid from the tank may be drawn to the gas-permeable filter so as to fill the nozzle without leakage.

Thus, independent claims 1 and 6 both call for a gas permeable/liquid impermeable filter. The filter allows a gas to pass therethrough but prevents a liquid from passing therethrough. This is an essential element of the claimed invention. Hermanson fails to teach or suggest such a gas permeable filter.

The Office Action identifies priming element 22 of Hermanson as a device functioning as the claimed gas permeable filter. However, the priming element 22 cannot prevent a liquid from passing therethrough as claimed. In particular, the priming element 22 removes debris and ink from nozzles by drawing a vacuum through a passageway 30. Notably, the top surface of the priming element 22 is a continuous opening and ink passes therethrough.

More particularly, the passageway 30 is defined by first and second walls 32 and 34 which are separated by a predetermined distance. To prevent the passageway 30

from collapsing under the application of a vacuum, one or more support members 36 are placed across the passageway 30. The support members 36 are recessed below the top surface.

Before printing commences, a pump 18 is operated to apply suction to the passageway 30 within the priming element 22 to thereby draw some amount of ink or debris from the printhead nozzles 24. The ink drawn from the printhead is held in an ink trap 14. This prevents the suction pump 18 from receiving ink which could cause a malfunction therein.

Since the priming element 22 draws some amount of ink or debris from the printhead nozzles 24 and the ink is held in the ink trap 14 disposed downstream of the priming element 22, it can be appreciated that the priming element 22 does not prevent a liquid from passing therethrough. In fact, it can be concluded that liquid in the form of ink is drawn through the priming element 22. As such, the claimed gas permeable filter is not provided. In fact, Hermanson teaches directly away from such a configuration.

The priming element 22 of Hermanson has no filter function which blocks permeation of liquid as claimed. Instead, the purpose of the invention of Hermanson is to provide support members 36 to prevent the walls of the priming element 22 from collapsing. Hermanson fails to teach or suggest the claimed gas permeable filter. As such, Hermanson cannot render claims 1 or 6 unpatentable. Further, inasmuch as Claims 2-5 depend from 1, these claims should be in condition for allowance for at least the same reasons as set forth above with respect to claim 1. Similarly, inasmuch as Claims 7-10 depend from 6, these claims should be in condition for allowance for at least the same reasons as set forth above with respect to claim 6.

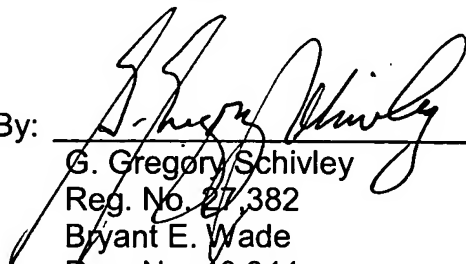
Applicant also wishes to note that although no prior art was applied to claim 13, claim 13 also calls for the above described gas permeable filter which allows gas to pass therethrough but prevents liquid from passing therethrough. Claim 13, as well as claims 14-17 dependent therefrom, should be in condition for allowance for at least the same reasons as set forth above with respect to claims 1 and 6.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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By: 
G. Gregory Schivley
Reg. No. 27,382
Bryant E. Wade
Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

[BEW/cmh]

AMENDMENTS TO THE DRAWINGS

The attached "Replacement Sheet" of drawings includes changes to Figure 6.

The attached "Replacement Sheet," which includes Figure 6, replaces the original sheet including Figure 6.

Attachment: Replacement Sheet